

# Moult in the Baya Weaver *Ploceus philippinus* Linnaeus<sup>1</sup>

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(With three text-figures)

In an earlier article in the *Journal* [73 (2): 249-260] I had described my studies on the ecology of the Baya in Cuddapah district. In the course of the same study I had opportunity to examine about 2000 Baya Weavers (*Ploceus philippinus* Linnaeus) in different seasons. The plumages and moult of feathers in different stages of life-history of this species were studied in order to work out a basis for judging the age of the birds from external characters.

## MATERIALS AND METHODS

Birds were netted from different villages near Nandalur, Reddipalli, Anantharajupet and Kodur of Rajampet Taluk. In this study 460 nestlings and 1085 older (juvenile adult) birds were ringed out of which 13 nestlings and 58 adult birds were recaptured. Besides these, 513 birds dissected in 1968-69 were also examined. The peculiarities of plumage of each bird were noted at each examination.

## MOULTS

The Baya undergoes two moults of its body feathers (of the capital, spinal, humeral, femoral, crural and ventral tracts) and tail-coverts in a twelve month period, first before breed-

ing (prenuptial moult) and the second after breeding (postnuptial moult). The rectrices and remiges are renewed only once in 12 months. The span of the flight feather moult overlaps that of the body plumage and the two are treated separately.

### 1. Postjuvenal moult

At the time of nest-leaving the fledgling Baya appears fully feathered. Before the young bird is a year old its juvenal plumage is renewed completely. This moult takes place when the bird is 4-6 months old (Table 1). At the population level this moult takes place from November to the end of April.

In the study area the Baya breeds from mid-April to mid-November and therefore the juveniles hatched in the earlier broods wear their plumage longer than those of the later broods. Both body and flight feathers are changed in the postjuvenal moult (Table 1). Sequence of the postjuvenal moult is the same as those of the corresponding tracts of the adults at this time.

### 2. First Prenuptial moult

From the very fresh feathers of recaptured (ringed) birds it is presumed that the female Baya undergoes its first prenuptial moult at about 12 months of age. At Rajampet the female Baya breeds for the first time when

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it is about one year old and the male Baya has breeding potential when it is about 15 months old. In the young males raised early in the previous season (Table 1) the first prenuptial moult may take place at 12-15 months of age. The young birds raised in the later broods of the previous season may in very rare cases breed even before assuming the nuptial plumage (Table 1). The pattern of feather replacement during the first prenuptial moult is the same as that during the subsequent prenuptial moults. In 1968-69 Bayas

were dissected throughout the year. Immature males in stages of prenuptial moult were observed as late as July.

### 3. The second and subsequent prenuptial moults

Both male and female Bayas undergo the prenuptial moult which involves only body plumage, the female without undergoing any change of colours. At the population level the prenuptial moult starts in March and ends in June.

TABLE 1  
RECAPTURES OF BAYAS RINGED AS NESTLINGS

| Ring No.          | Sex | Dates<br>of ringing   | of recapture | Stage of moult of feathers at the time of<br>recapture   |
|-------------------|-----|-----------------------|--------------|--|
| Prefix 42051      |     | 19-9-1970             | 16-10-1970   | Juvenal plumage, not moulting  |
| A 102187          |     | 25-8-1970             | 10-11-1970   | Plumage faded as in adult females at this time, spinal tract and H i-iv moulting                         |
| AB 19967          |     | 8-9-1970              | 6-1-1971     | Plumage faded and worn, all tracts of feathers including rectrices and H i-ii moulting                   |
| Prefix 42142      |     | 17-10-1970            | 12-2-1971    | Body feathers and H vi-viii and A i and ix moulting  |
| A 102077          |     | 23-7-1970             | 4-1-1971     | A i-ii and vii-ix moulting, A iii-vi old, rest of the plumage new  |
| A 95895           |     | 25-5-1970             | 10-11-1970   | Faded and worn, H i-iv moulting  |
| AB 19821          |     | 27-9-1969             | 27-4-1970    | Feathers of all tracts moulting, A iv-vi old   |
| A 84284           |     | 19-9-1969             | 25-4-1970    | Body secondaries and rectrices moulting  |
| A 102122          |     | 15-6-1970             | 1-2-1971     | All tracts moulting, A iv-vi old   |
|                   |     | Date of leaving nest: |              |  |
| A 99853 (male)    |     | 27-5-1970             | 23-8-1971    | Netted in a breeding colony and breeding plumage and black bill  |
| AB 19972 (male)   |     | 26-9-1970             | 23-8-1971    | Female type of plumage and lead coloured bill. A section of the testis of this bird showed spermatocytes |
|                   |     | to<br>29-9-1970       |              |  |
| A 102154 (female) |     | 17-8-1970             | 23-8-1971    | Ovary in breeding condition, appearance same as of older females   |
| A 102150 (female) |     | -do-                  | 25-8-1971    | — do —   |
| A 102172          |     | 28-8-1970             | 23-8-1971    | — do —   |
| (female)          |     | to<br>30-8-1970       |              |  |

The Prefix was Hongkong.

#### 4. First and subsequent postnuptial moults

All adult Bayas change their body feathers after the breeding season. At the population level the postnuptial moult starts in October-November and ends in March.

#### 5. Moult of flight feathers in Bayas of all age groups

Between November and May all Bayas moult their primaries, secondaries and coverts of primaries and secondaries, and rectrices. The juveniles moult their flight feathers for

by Stresemann & Stresemann (1966) the primaries are referred to by the symbol H (Handwing) and Secondary by the symbol A (Armwing). The primaries moult from H1 (innermost) to H10 (outermost) systematically in the descendant order, and H10 is the last to drop. The secondary moult starts with A1 (outermost); later on another descendant moult may start from A6. A7 to A9 (tertials) moult differently with A8 moulting first in many cases. In rare cases the central secondaries (A4-5) remain unmoulted, and these feathers are retained (Table 7).

TABLE 2  
MOULT OF THE PRIMARIES IN THE BAYA

| Months   | Total number of birds examined | Stages of moult of primaries |    |    |    |    |    |    |    |      |
|----------|--------------------------------|------------------------------|----|----|----|----|----|----|----|------|
|          |                                | H1-2                         | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10* |
| October  | 28                             | 5                            | —  | —  | —  | —  | —  | —  | —  | —    |
| November | 23                             | 10                           | 8  | 4  | 1  | —  | —  | —  | —  | —    |
| December | 39                             | 9                            | 8  | 12 | 6  | 1  | 1  | 1  | 1  | —    |
| January  | 35                             | —                            | 1  | 5  | 5  | 8  | 11 | 3  | 2  | —    |
| February | 46                             | —                            | 2  | 1  | 11 | 5  | 13 | 5  | 8  | —    |
| March    | 32                             | —                            | —  | —  | —  | 1  | 3  | 5  | 8  | 6    |

\* Moult of H10 was not consistently recorded as in many cases it was missing.

the first time when 4-6 months old (Table 1). In the adults this moult occurs once in a 12-month period. The moult starts at the end of the breeding period, almost at the same time when the postnuptial moult also starts, and ends only after the start of the prenuptial moult. At the population level, the primaries are moulted between December and March, and secondaries between December and May. The majority of rectrices are moulted between December and April.

(a) *The Wing.* The Baya has 9 functional primaries and 9 secondaries. The tenth primary is vestigial and the ninth secondary smaller than the others. Following the system used

Each upper greater primary-covert is shed with the corresponding primary. The greater secondary coverts are shed more or less simultaneously and all of them are usually renewed by the time the primary moult reaches H5-6. The upper lesser wing-coverts moult at the same time as the upper greater coverts, but the upper median wing-coverts are the last to be renewed. The alula quills usually moult with H7-10 so that the alula is renewed by the time primary moult is completed. *The timing of primary moult*

The primaries begin to moult in some birds as early as October but only from November-December in any significant numbers. By

TABLE 3  
MOULT OF THE BODY, AND TAIL IN RELATIONS TO THE PRIMARY MOULT

| Stage of<br>Primary<br>moult | No. of<br>birds<br>examined | Upper<br>greater<br>coverts | Upper<br>median<br>coverts | Upper<br>lesser<br>coverts | Under<br>greater<br>coverts | Under<br>median<br>coverts | Under<br>lesser<br>coverts | Seco-<br>ndaries | Alula | Scapul-<br>ars | Capit-<br>al | Ventr-<br>al | Dorsal | Fem-<br>oral | Crural | Upper<br>tail<br>coverts | Under<br>tail<br>coverts | Average<br>tail<br>Scores |
|------------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|-----------------------------|----------------------------|----------------------------|------------------|-------|----------------|--------------|--------------|--------|--------------|--------|--------------------------|--------------------------|---------------------------|
| All<br>the<br>10<br>old      | 16                          |                             |                            |                            |                             |                            |                            |                  |       |                | 10           |              |        |              |        |                          |                          |                           |
| HI                           | 3                           | 3                           |                            |                            |                             |                            |                            |                  |       |                |              | 2            | 1      |              |        |                          |                          |                           |
| II                           | 6                           | 6                           |                            |                            |                             |                            |                            |                  |       |                | 4            | 3            |        |              |        |                          |                          |                           |
| III                          | 10                          | 9                           | 1                          |                            | 2                           | 2                          | 2                          |                  |       | 6              | 6            | 8            | 7      | 4            | 3      |                          |                          |                           |
| IV                           | 6                           | 6                           |                            |                            |                             |                            |                            | 1                |       |                | 5            | 3            | 2      | 1            | 2      | 2                        |                          |                           |
| V                            | 20                          | 20                          | 7                          |                            | 4                           | 2                          | 4                          | 10               | 1     | 9              | 13           | 17           | 18     | 11           | 8      |                          | 2                        |                           |
| VI                           | 13                          | 13                          | 2                          |                            | 4                           | 4                          | 5                          | 12               | 3     | 4              | 9            | 12           | 12     | 9            | 7      | 4                        | 11.7                     |                           |
| VII                          | 15                          | 15                          | 7                          |                            | 5                           | 3                          | 2                          | 13               | 7     | 4              | 7            | 11           | 9      | 8            | 7      | 3                        | 25.5                     |                           |
| VIII                         | 9                           | 9                           | 2                          |                            | 1                           | 1                          | 1                          | 9                | 2     | 1              | 2            | 4            | 3      | 2            | 2      |                          | 43.8                     |                           |
| IX                           | 9                           | 9                           | 2                          |                            | 1                           | 1                          | 1                          | 9                | 1     |                | 1            | 1            | 2      | 2            | 2      |                          | 50.8                     |                           |
| X                            | 4                           |                             |                            |                            |                             |                            |                            | 3                |       |                |              |              |        |              |        |                          | 50.7                     |                           |
| All<br>the<br>10<br>New.     | 27                          |                             |                            |                            |                             |                            |                            | 11               |       |                | 20           | 21           | 9      | 2            | 2      | 10                       |                          |                           |

# MOULT IN THE BAYA

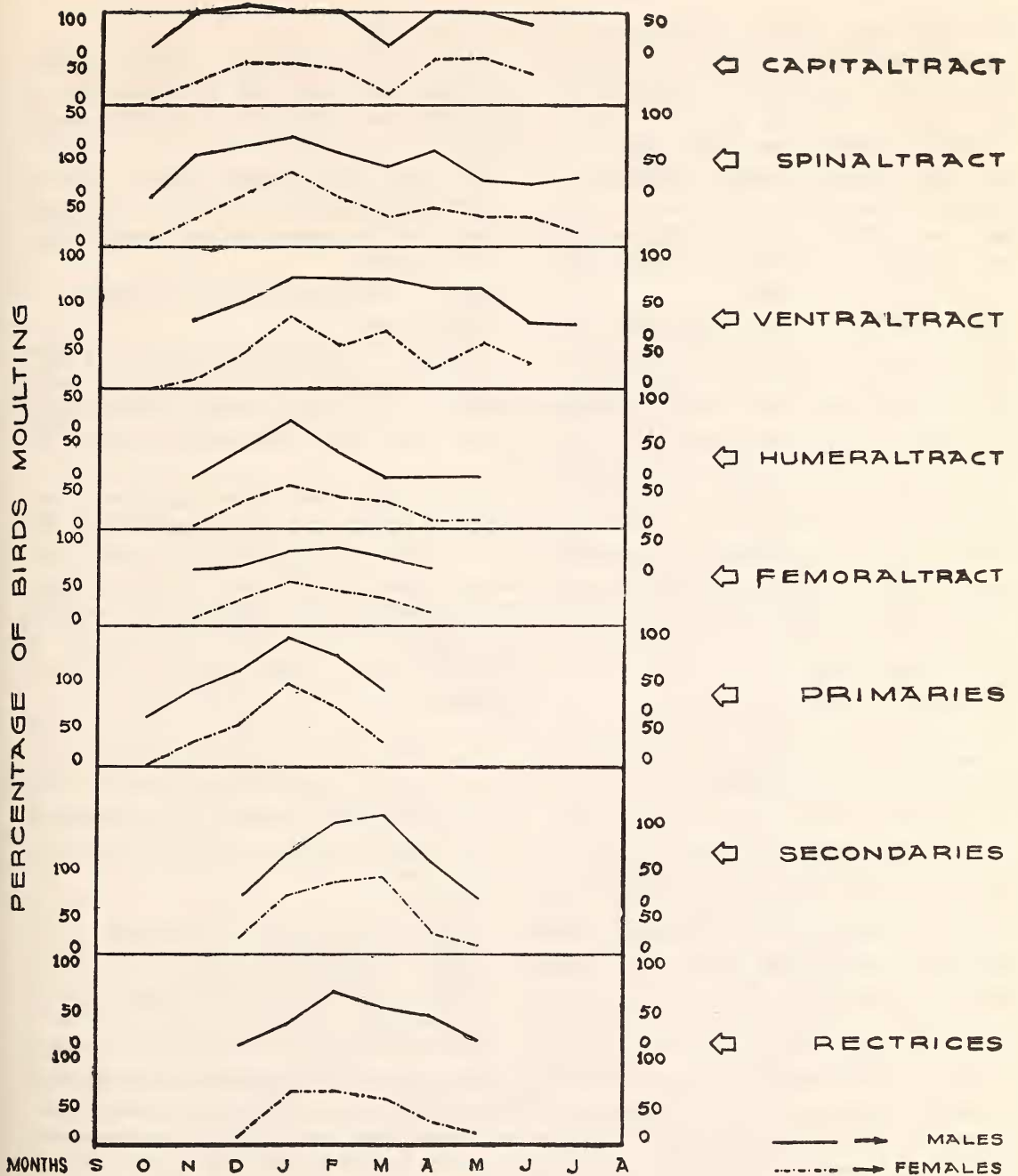


Fig. 1. Showing the progress of moult in the Baya at Rajampet (adult), consolidated data from the year 1968-71.



March-April their moult is completed. The data are summarised in Table 2. In the horizontal columns the number of Bayas in different stages of primary moult is given.

Each bird has been put in the group of its most distal moulting primary irrespective of the length of that quill, e.g. it may be in any stage from small pin to nearly full-grown. The same procedure is followed in judging moult of the primaries in Table 3.

Table 2 shows the birds undergoing heavy moult of the primaries between December and February. Tables 2 and 3 do not include juveniles. A male bird in full breeding plumage and a female with a brood patch were taken as adults. There was considerable variation in the timing and tempo of moult between the individual Bayas of the same area. Moult of primaries proceeded in a systematic manner without a gap of old quills between any two growing quills and with rare exceptions moult of primaries of both sides proceeded symmetrically.

#### *The secondary moult*

The secondaries moulted under the cover of new secondary greater coverts from two or more foci. At the population level secondaries moulted between December and May and with rare exceptions moult in the two wings was symmetrical. The example given below taken from an adult female collected on 23 January 1969 is typical of the wing moult of the Baya at this time of the year. Moult pattern was symmetrical. Dorsal aspect: Lesser coverts moulting; Median coverts old; Greater primary coverts—covering H 1-6 new, H 7-10 old; Greater secondary coverts—all new or growing; primaries H 1-6 full-grown or growing, H 7-10 old; Secondaries: A1, 7, 8 and 9 new or growing, 2-6 old; Alula old; Ventral aspect: under greater coverts new; under lesser coverts moulting.

#### *(b) The tail*

Most of the birds moult rectrices between December and May. Partial replacement of tail feathers were observed in the other months also.

The tail feathers usually moult from the central pair outwards once in a 12 month period, but the tail-coverts are renewed twice in this period.

#### *Moult of the body feathers in relation to primary moult*

The span of remex moult overlaps the spans of both postnuptial and prenuptial moult (Figure 1). In some specimens the postnuptial moult started before the primary moult (Table 3).

But the body tracts moult significantly only after the primary moult has reached stage H3. The moults of the dorsal and ventral tracts occupy most of the time of primary moult. The secondaries and rectrices start moulting at stage H5. In figures 1-2 the progress in moult of various feather tracts are plotted on graphs.

#### *Moult of rectrices in relation to primary moult*

The birds were arranged according to the stages of primary moult and the average scores of primaries and rectrices were calculated. Each feather was given a score in the following system:

|                                       |   |
|---------------------------------------|---|
| Old feather                           | 0 |
| Feather missing or in small pin stage | 1 |
| Feather in large pin or brush stage   | 2 |
| Feather brush to half grown           | 3 |
| Feather half to three-quarters grown  | 4 |
| Feather three quarters to full-grown  | 5 |

The average figures plotted on a graph (figure 2) show how the tail moult starts significantly when moult of primaries has progressed about half way. There were exceptional cases of partial replacement of lost feathers in the tail recorded before the start of primary moult.

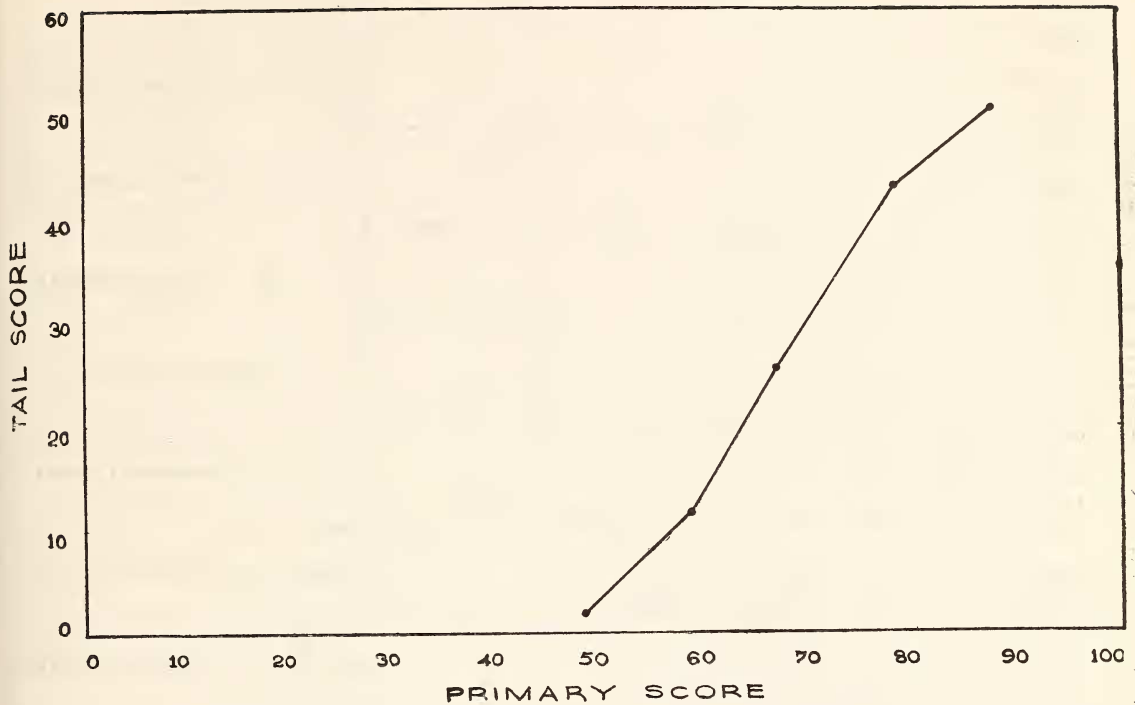


Fig. 2. Tail score with respect to primary score in the Baya.

#### *Moult and the gonadal cycle*

The average volume of the left testis in adult Bayas was calculated for each month from March 1968 to February 1969. About 10-15 adult males were measured each month. The monthly averages of volumes of testes obtained from March 1968 to February 1969 are plotted (Figure 3) along with the monthly percentages of adult males in prenuptial and postnuptial moult. Thus in October-November when the postnuptial moult starts the gonads are regressing and in March when the prenuptial moult starts the gonads are enlarging. During a major part of June to October, the period of full gonadal potency the moult is reduced or excluded.

#### DISCUSSION

Breeding and moult are two physiological events which involve much metabolic strain, in the life of birds. Of the two, breeding is the more important activity and breeding at the most favourable part of the year could be ultimate factor which influences the timing and tempo of moult. King & Farner (1961) tentatively estimated a mean increase in energy intake of 7.6 per cent in the House Sparrow during the postnuptial moult assuming no change in other energy demanding functions. It is reasonable to expect that the Bayas of Rajampet will complete a major part of their moult in the months from November to Feb-

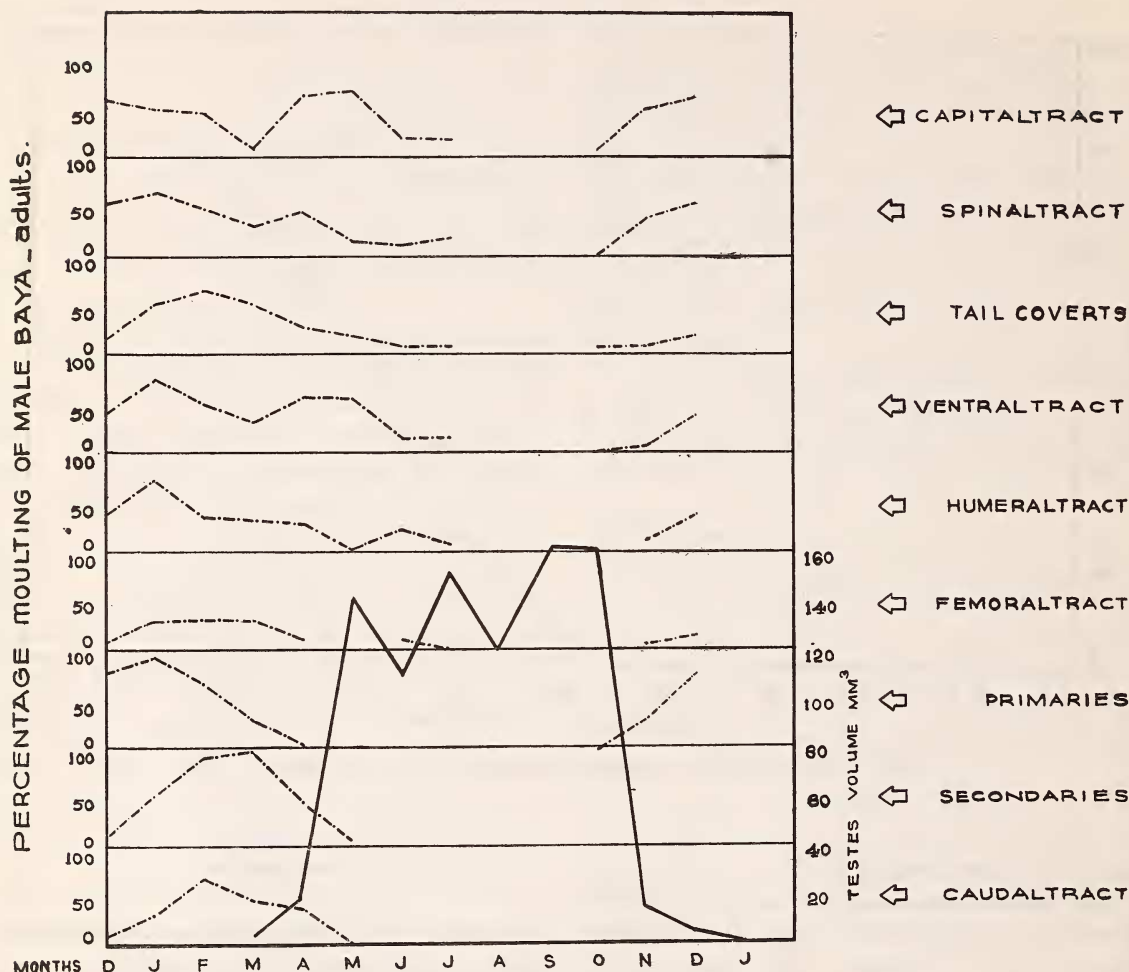


Fig. 3. Gonadal cycle and moult in the male Baya.

ruary when availability of paddy, their principal food, is good. The adult and juvenile Bayas of the study area completed a major part of their moult at this time.

The timing of moult varied in different individuals of the population. But there were many unmated male Bayas in this area and breeding activity did not stop synchronously. Those birds which had less or no parental duties could start moulting earlier.

By October-November the plumage of the adults and older juveniles was considerably worn, brittle, and had many gaps. A total renewal of feathers at this time ensures adequate insulation during the colder months of January and February. A prenuptial moult of the body feathers in March-June reinforces the plumage for the rigours of a long breeding season. The bright plumage of male acquired during the moult, makes the male con-



## MOULT IN THE BAYA

spicuous and prepares it for the breeding activities. The primaries and the secondary greater coverts are renewed earlier than the secondaries. Molt of secondaries is less systematic and sometimes incomplete. The orderly renewal of primaries and the slow renewal of all remiges help in keeping the impairment of flight at a minimum. The secondaries are protected at their time of molt by a new set of greater coverts. Stresemann & Stresemann (1966) observed how the secondaries seldom molted from a single proximal or distal focus. These authors preferred to designate A 9-7 as guard feathers with the function of shielding the folded wing from the sun and rain, in certain groups of birds. These proximal secondaries the Stresemanns observed, were renewed before the exchange of the outer (distal) secondaries started with A1. The pattern of molting of the proximal secondaries in the Baya is different from that of the rest of the secondaries thus agreeing generally with the above observations.

The temporal separation of the molt and

breeding (Figure 2) in the Baya avoids competition between these functions for energy.

To sum up, molt in the Baya at Rajampet is so regulated as to ensure minimum impairment of flight, better insulation in the colder months, exploitation of a period of plenty in its major food item, and conservation of energy. As advised by Prof. Stresemann the details of ringing and recapture of Bayas used in this study are appended.

The first three birds retained breeding plumage for at least 5 months after ringing and A 84241 remained in breeding plumage till 18th November. These illustrate the long period over which breeding plumage is retained by the male Baya at Rajampet.

### SUMMARY

This paper covers the results of examination of plumage of about 2000 Bayas of different age classes in Rajampet, 1968-71.

The adult Bayas molt feathers of the body before breeding (March to June), and the entire body and flight feathers after breed-

TABLE 4

MALE BAYAS RINGED AND RETRAPPED IN BREEDING PLUMAGE

| Ring No. | Dates (1 of ringing<br>2 of recapture) |            | Stage of molt of feathers  |
|----------|--|------------|--|
| A 80112  | 1                                      | 12-4-1968  | In full breeding plumage, not moulting                                   |
| A 80112  | 2                                      | 4-10-1968  | In full breeding plumage, not moulting                                   |
| A 80114  | 1                                      | 12-4-1968  | In full breeding plumage, not moulting                                   |
| A 80114  | 2                                      | 3-10-1968  | In full breeding plumage, not moulting                                   |
| A 80115  | 1                                      | 12-4-1968  | In full breeding plumage, not moulting                                   |
| A 80115  | 2                                      | 1-10-1968  | In full breeding plumage, not moulting                                   |
| A 84198  | 1                                      | 12-4-1969  | Completed molt in all tracts (non-flight) of feathers. A 4 not cornified |
| A 84198  | 2                                      | 30-6-1970  | Full breeding plumage not moulting                                       |
| AB 19936 | 1                                      | 3-7-1970   | Full breeding plumage not moulting                                       |
| AB 19936 | 2                                      | ?-8-1970   | Full breeding plumage not moulting                                       |
| A 84241  | 1                                      | 10-7-1969  | Full breeding plumage not moulting                                       |
| A 84241  | 2                                      | 18-11-1969 | Full breeding plumage not moulting                                       |

TABLE 5

BAYAS RINGED IN BREEDING PLUMAGE AND RETRAPPED IN STAGES OF FLIGHT FEATHER MOULT

| Ring No. | Sex | Dates (1 of ringing<br>2 of recapture) | Stages of moult of feathers                         |
|----------|-----|--|---|
| A 80140  | M   | 1 10-10-1968                           | Full breeding plumage                               |
| A 80140  | M   | 2 9-12-1968                            | H i-ii moulting                                     |
| A 80151  | M   | 1 10-10-1968                           | Full breeding plumage                               |
| A 80151  | M   | 2 6-1-1969                             | Remiges, H vi and A ix moulting                     |
| A 80170  | M   | 1 5-11-1968                            | Full breeding plumage                               |
| A 80170  | M   | 2 6-12-1968                            | Capital and spinal tracts, H i-iii moulting         |
| A 80060  | M   | 1 9-12-1968                            | Full breeding plumage                               |
| A 80060  | M   | 2 15-4-1969                            | A v not cornified, iii-iv old, rest new.            |
| A 84239  | M   | 1 12-7-1969                            | Full breeding plumage                               |
| A 84239  | M   | 2 4-1-1971                             | All feather tracts H v-vi A i, viii and ix moulting |
| A 84253  | M   | 1 20-8-1969                            | Full breeding plumage                               |
| A 84253  | M   | 2 6-1-1971                             | Off plumage   |
| AB 19801 | M   | 1 22-9-1969                            | Breeding plumage                                    |
| AB 19801 | M   | 2 4-1-1971                             | H i-v moulting                                      |
| A 80119  |     | 1 25-4-1968                            | Not moulting  |
|          |     | 2 (a) 3-12-1969                        | H i-iv moulting                                     |
|          |     | 2 (b) 14-4-1970                        | Moult complete on all tracts                        |

ing from November to May. The major part of the moults is completed before the commencement of breeding activity. The female moults without any change in the colour of its feathers. The sequence and timings of moult are the same in both sexes of the adults.

The juvenile Baya moults its entire feather coat at the time of the adults' postnuptial moult. The post-juvenal and postnuptial moult are identical in detail. Body moult starts on the head. The primaries which are the first

flight features to moult do so, systematically from the proximal to the distal end. The secondaries moult from several foci. The rectrices moulted from the centre outwards.

Moults reach a peak in December-January when paddy is most available. The slow tempo of moult of remiges causes minimum impairment of flight. The postnuptial moult gives the birds a better insulation for the cold months to come. Notes about the recaptures of ringed birds are appended.

# MOULT IN THE BAYA

TABLE 6

BAYAS WITH FEATHERS IN MOULT AT TIMES OF RINGING AND RECAPTURE

| Case No. | Ring No.<br>Sex | Dates (1 of finding<br>2 of recapture) |            | Stages of moult of feathers                        |
|----------|-----------------|--|------------|--|
| 1        | A 80070 M       | 1                                      | 1-1-1969   | H i-vi and proximal secondaries moulting           |
|          | -do-            | 2                                      | 5-4-1969   | A iv-vi moulting                                   |
| 2        | A 80084 O       | 1                                      | 6-1-1969   | All the flight feathers old                        |
|          | -do-            | 2                                      | 22-1-1969  | H i-v moulting                                     |
| 3        | A 95125 F       | 1                                      | 22-1-1970  | H i-iv A i and ix moulting                         |
|          | -do-            | 2                                      | 29-3-1970  | Flight feathers other than central secondaries new |
| 4        | A 84114 F       | 1                                      | 9-3-1969   | Only A iv-v old rest new                           |
|          | -do-            | 2 (a)                                  | 12-4-1969  | A iv moulting rest new                             |
|          | -do-            | 2 (b)                                  | 30-6-1970  | Only one rectrix moulting                          |
| 5        | A 84115 F       | 1                                      | 9-3-1969   | A iii-vii old rest new                             |
|          | -do-            | 2                                      | 12-4-1969  | A iv-vi old rest new                               |
| 6        | A 84112 F       | 1                                      | 9-3-1969   | Only A iv old                                      |
|          | -do-            | 2                                      | 16-1-1970  | H x moulting, A iv-vi old                          |
| 7        | A 84161 O       | 1                                      | 2-4-1969   | A ii-v old   |
|          | -do-            | 2                                      | 15-4-1969  | A moulting still continuing                        |
| 8        | A 80014 M       | 1                                      | 13-11-1968 | Only one rectrix moulting                          |
|          | -do-            | 2                                      | 2-4-1969   | A iv-vi old rest new                               |
| 9        | A 80008 M       | 1                                      | 13-11-1968 | One rectrix moulting                               |
|          | -do-            | 2                                      | 9-3-1969   | A iii-vii, six rectrices old                       |
| 10       | A 80072 F       | 1                                      | 15-11-1968 | Flight feathers not moulting                       |
|          | -do-            | 2                                      | 1-2-1969   | H i-v and one A ix moulting                        |
| 11       | A 95041 F       | 1                                      | 1-12-1969  | Flight feathers not moulting                       |
|          | -do-            | 2                                      | 4-1-1971   | H i-iv and A i, viii and ix new or growing         |
| 12       | A 88039 M       | 1                                      | -12-1969   | H i-iii new or growing                             |
|          | -do-            | 2                                      | 7-1-1971   | H i-vii and A i, viii and ix new or growing        |
| 13       | A 95094 M       | 1                                      | 13-1-1970  | H i-iii and A i-ii and vii-ix new or growing       |
|          | -do-            | 2                                      | 2-5-1970   | Rectrices moulting A iv-vi old                     |
| 14       | A 99716 O       | 1                                      | 19-2-1970  | H viii-x and A i-vii old, rest of the plumage new  |
|          | -do-            | 2                                      | 24-4-1970  | A v-vi old   |

Cases 1, 4, 5 and 14 show the slow progress of secondary moult; in 3 primary moult was fast. The time required for completing the postnuptial moult calculated from cases 8, 9 and 13 is about 4 months.

TABLE 7

BAYAS IN OFF PLUMAGE ON FIRST AND IN BREEDING PLUMAGE ON SECOND EXAMINATION

| Ring No.<br>Sex | Dates (1 of ringing<br>2 of recapture) |            | Stages of moult of feathers  |
|-----------------|--|------------|--|
| A 80080 M       | 1                                      | 6-1-1969   | Spinal tract upper tail coverts, H i-vi and A ix moulting  |
| -do-            | 2                                      | 11-10-1969 | Breeding plumage   |
| A 95094 M       | 1                                      | 13-1-1970  | All tracts of feathers moulting H i-viii new A (only) iii-vi old                                       |
| -do-            | 2                                      | 2-5-1970   | Capital and ventral tracts moulting into breeding plumage outer 4 rectrices not cornified, A iv-vi old |
| A 80106 M       | 1                                      | 10-4-1968  | Off plumage not moulting   |
| -do-            | 2                                      | 8-10-1969  | In breeding plumage not moulting   |
| AB 19932 M      | 1                                      | 30-6-1970  | All non-flight feathers moulting A v old   |
| -do-            | 2                                      | 9-9-1970   | Only A v old (colour different from rest)  |
| A 95116 F       | 1                                      | 21-1-1970  | Body (all tracts) and H i-v moulting   |
| -do-            | 2                                      | 2-8-1970   | Netted at a breeding colony not moulting   |
| A 84203 M       | 1                                      | 15-4-1969  | Capital spinal ventral and caudal tracts and A iv moulting   |
| -do-            | 2                                      | 20-8-1969  | In breeding plumage not moulting   |

TABLE 8

THE NOTES ON MOULT IN THE REST OF THE RETRAPPED BAYAS

| Ring No.<br>Sex | Dates (1 of ringing<br>2 of recapture) |            | Stages of moult of feathers                    |
|-----------------|--|------------|--|
| A 80087 F       | 1                                      | 6-1-1969   | Two rectrices and H i-iii moulting             |
| -do-            | 2                                      | 18-11-1969 | H i-ii moulting                                |
| A 95140 F       | 1                                      | 12-2-1970  | A iv-v old, rest of the feathers new           |
| -do-            | 2                                      | 21-10-1970 | Not moulting found dead in a nest with chicks  |
| A 84121 F       | 1                                      | 9-3-1969   | Moult recently completed                       |
| -do-            | 2                                      | 17-2-1970  | Secondaries moulting. A v-vi old               |
| A 19927         | 1                                      | 30-6-1970  | Not moulting, netted in a breeding colony      |
| -do-            | 2                                      | 9-9-1970   | Not moulting, re-trapped in the same colony    |
| A 84243 F       | 1                                      | 7-8-1969   | Not moulting, first year bird                  |
| -do-            | 2                                      | 31-7-1970  | Not moulting found dead in nest with chicks    |
| A 84296         | 1                                      | 20-9-1969  | Not moulting. Breeding                         |
| -do-            | 2                                      | 27-9-1969  | Not moulting. Retrapped from a roost           |
| A 80125         | 1                                      | 10-10-1968 | Not moulting                                   |
| -do-            | 2                                      | 18-2-1970  | A iii-vi moulting                              |
| A 80190         | 1                                      | 1-11-1968  | Not moulting                                   |
| -do-            | 2                                      | 11-11-1970 | Not moulting                                   |
| 88020           | 1                                      | 15-11-1969 | Not moulting                                   |
| -do-            | 2                                      | 20-3-1970  | All feather tracts other than capital moulting |

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